

ABSTRACT OF THE DISCLOSURE

Exemplary received signal processing may be based on maintaining a model of received signal impairment correlations, wherein each term of the model is updated periodically or as needed based on measuring impairments for a received signal of interest. An exemplary model comprises an interference impairment term scaled by a first model fitting parameter, and a noise impairment term scaled by a second model fitting parameters. The model terms may be maintained based on current channel estimates and delay information and may be fitted to measured impairment by adapting the model fitting parameters based on the measured impairment. The modeled received signal impairment correlations may be used to compute RAKE combining weights for received signal processing, or to compute Signal-to-Interference (SIR) estimates. Combined or separate models may be used for multiple received signals. As such, the exemplary modeling is extended to soft handoff, multiple antennas, and other diversity situations.